BREVIORA

Museum of Comparative Zoology

Cambridge, Mass. November 28, 1954 Number 38

ONNIA (TRILOBITA) FROM VENEZUELA

By H. B. Whittington

In 1938 Leith described a Middle Ordovician fauna from the Venezuelan Andes which included the graptolite *Dicranograptus*, a cryptolithinid trilobite, and fragmentary brachiopods and pelecypods. Recently I received several specimens of the trilobite collected from the original locality by Dr. G. R. Pierce, of the Creole Petroleum Corporation, and sent to me by Dr. V. D. Winkler and Mr. K. F. Dallmus, also of the Creole Petroleum Corporation. I am deeply indebted to these gentlemen, and to the Creole Petroleum Corporation for presenting the specimens to the Museum of Comparative Zoology, and for permitting me to publish this note on them. Dr. Karl M. Waagé, Yale University, kindly loaned the original specimen described by Leith.

The new material enables a more complete description to be given, and shows that the species is related to contemporary British, central and southern European, and North African forms, rather than to North American ones. The terminology is that previously employed (Whittington, 1940), with the additions of Stäuble (1953).

Family TRINUCLEIDAE Emmrich, 1884
Subfamily CRYPTOLITHINAE Whittington, 1941

Genus Onnia Bancroft, 1933
onnia terryi (Leith, 1938)
Pl. 1, figs. 1-7

Holotype. Peabody Museum of Natural History, Yale University, no. 15317, from Caparo-Bellavista Series, "first hill outside the Capar[r]o River floodplain, about three-quarters of a mile south of the river, along the trail between Santa Barbara (State

of Zamora) and Mucuchachi (State of Mérida)'' (Leith, 1938, p. 338).

Additional Material. From the same locality near the Caparo River, State of Barinas (=Zamora), collected by G. R. Pierce in 1951-1952. The fossils are contained in a soft, grey-white, iron-stained, micaceous siltstone, and preserved with some distortion as moulds.

Age. Middle Ordovician (Leith, 1938). Later collections have not included additional species that might throw further light on the precise horizon.

Description. The holotype shows the mould of the inner surface of the upper lamella of the fringe, but the new material includes moulds of the inner and outer surfaces of both lamellae of the fringe, as well as moulds of the pygidium and thorax, and enables amplification of Leith's description (1938, pp. 341-342, fig. 2).

Glabella clavate, expanding forward; occipital ring narrow, convex, long median spine, the shallow occipital furrow with deep appendiferal pits laterally. Immediately in front of the occipital furrow the glabella appears to be exceptionally inflated where it is crossed by the occiput (Pl. 1, figs. 2, 5), and in front of the occiput glabellar furrows may have been present, as in typical cryptolithinids. The distortion and crushing of the specimens (Pl. 1, figs. 1-3, 5) gives, however, a variable appearance to this portion of the glabella. Axial furrows with anterior pits. Cheek lobes descend steeply to fringe; cheek frame straight and transversely directed, fringe frame directed backward and outward so that posterolateral part of fringe is wide and projects posteriorly.

Fringe with outer surface of upper lamella sloping forward anteriorly, but anterolaterally and laterally convex, so that there is a depressed region adjacent to the cheek-lobe. Lower lamella slopes outward, anteriorly flexed at girder. Long genal spine directed backward and slightly outward. Girder a broad ridge anteriorly, less conspicuous anterolaterally and laterally, where a lower ridge (in the outer surface of the lower lamella) of almost equal width runs between the two rows of pits (I_1 and I_2) immediately inside the girder, and a narrower, still lower ridge separates the next inmost rows (I_2 and I_3; Pl. 1, fig. 2).

Near the genal angle these inner ridges die out, and the girder runs into the channel in the under-side of the genal spine (Pl. 1, fig. 4). Pits of E_2 smaller than those of E_1, laterally and anterolaterally in a continuous row, but anteriorly becoming irregular, and about 10 pits from the midline E_2 bifurcates and E_3 is formed in this anterior region (Pl. 1, fig. 1). The pits of E_3 are smaller and more numerous than those in E_2, and are not radially arranged with them. E_1 and I_1 are the largest pits in the fringe, in regular rows disturbed only at the genal angle, and anteriorly and laterally radially arranged with each other and the rows inside. I_2 complete in front of the glabella, I_3 commencing at about the 4th pit of I_2 from the median line, I_4 commencing anterolaterally, and additional rows laterally. In the inner, posterior part of the fringe concentric arrangement is replaced by quincuncial, while radial arrangement is conspicuous laterally and anterolaterally, especially in the depressed inner region. Low concentric ridges separate the pits of E_2 and E_1, E_1 and I_1, I_1 and I_2, especially laterally and anterolaterally. In this same region radial ridges separate the pits of E_1 and the rows inside it, and such ridges separate the pits of the internal region anteriorly. Numbers of pits in left side of fringe in holotype and original of Plate 1, figure 1, are respectively: E_2, 37 and 32; E_1, 31 and 29; I_1, 30 and 29; I_2, 32 and 30. No ornament is preserved on the moulds of the cheek lobes or glabella.

Four segments of the characteristic thorax poorly preserved as external mould (Pl. 1, fig. 6). Pygidium (Pl. 1, figs. 6, 7) subtriangular in outline, low axis reaching to tip, pleural regions flattened, with narrow, ridge-like border and steeply-descending margins. First axial ring and pleural furrow distinct, remainder of axis not subdivided, but two or three additional pleural furrows and interpleural ridges may be discerned running straight outward and backward.

Discussion. This species is clearly a cryptolithinid (Whittington, 1941, pp. 23-25) but is distinguished from *Cryptolithus* by the following: (a) There are two complete rows of pits outside the girder, and a third row anteriorly. (b) Characteristic radial ridges do not separate the pits in the outer row.

The pits of E_2 are smaller than those of E_1, especially later-

ally, and here the upper lamella is convex upward, with a depressed region adjacent to the cheek lobe. These same characters distinguish the Venezuelan species from species of *Cryptolithoides* (Whittington, 1941), and in addition the cephalon of *Cryptolithoides* has a different outline, and the pits inside the outer two rows are irregularly arranged laterally. While the Venezuelan material shows some features suggestive of *Broeggerolithus* (see Whittington, 1941, p. 24; Bancroft, 1949, pp. 298-299, Pl. 9, figs. 4, 5, 6, 8, Pl. 11, fig. 38), but has more rows of pits in the fringe and lacks the strong radial ridges in E_1, it is much more like species of *Onnia* (Whittington, 1940, Pl. 3; Lamont, 1948, Pl. 1; Bancroft, 1949, p. 299, Pl. 9, figs. 9-13, Pl. 10, fig. 16). These latter have E_2 of small pits, E_1 and I_1 of larger pits, and the region within I_1 showing a strong radial arrangement, particularly in the depressed lateral region. The girder in *Onnia* is strong anteriorly, but laterally concentric ridges of almost equal strength may run between E_1 and E_2, and/or I_1 and I_2 (e.g. Whittington, 1940, Pl. 3, fig. 5; Lamont, 1948, Pl. 1, figs. 4, 5). *O. terryi* shows a comparable development of ridges in the outer surface of the lower lamella in the interior region (Pl. 1, figs. 2, 4). *O. terryi* differs from other species of *Onnia* in the presence of E_3 anteriorly, but this single feature scarcely seems to warrant the erection of a separate genus. The development of additional external rows of pits anteriorly occurs in the probably older genus *Salterolithus* (Bancroft, 1949, p. 292, Pl. 9, figs. 1, 2), but species of this genus have fewer rows of pits internal to the girder.

Onnia is known from Middle and Upper Ordovician rocks in central and northern Britain, Bohemia, and as far south as North Africa (Termier and Termier, 1950, Pl. 187, figs. 8-11). The occurrence of *Onnia* in Venezuela suggests the possibility of a faunal province extending from central Europe and North Africa to northern South America in Ordovician times. Such a province may have passed through what is now Florida, for *Colpocoryphe exsul* Whittington, 1953, from early Middle Ordovician rocks of Florida, also has central European-North African affinity. If such a province existed, it is notable that it appears to lie almost entirely east and south of the belt of Upper Cambrian and early Ordovician "Atlantic faunas" recently portrayed by Wilson (1954, fig. 4), and that the rocks are mainly clastic.

REFERENCES

BANCROFT, B. B.

1949. Upper Ordovician trilobites of zonal value in southeast Shropshire. Proc. Roy. Soc., London, Ser. B., vol. 136, pp. 291-315, pls. 9-11.

LAMONT, A.

1948. B. B. Bancroft's geological work. 2. Upper Ordovician of the Cross Fell inlier. Quarry Manager's Jour., vol. 31, pp. 416-418, 466-469, pl. 1.

LEITH, E.

1938. A Middle Ordovician fauna from the Venezuelan Andes. Amer. Jour. Sci., 5th ser., vol. 36, pp. 337-344, pl.

TERMIER, G. and H.

1950. Paléontologie Marocaine, vol. 2. Actual. Sci. Industr. no. 1095, Paris.

STÄUBLE, A.

1953. Two new species of the family Cryptolithidae. Natur. Canad., vol. 80, pp. 85-119, 201-220, figs. 1-24.

WHITTINGTON, H. B.

1940. On some Trinucleidae described by Joachim Barrande. Amer. Jour. Sci., vol. 238, pp. 241-259, pls. 1-4.

1941. The Trinucleidae — with special reference to North American genera and species. Jour. Paleont., vol. 15, pp. 21-41, pls. 5, 6.

1953. A new Ordovician trilobite from Florida. Breviora, no. 17, pp. 1-6, pl. 1.

WILSON, JAMES L.

1954. Late Cambrian and early Ordovician trilobites from the Marathon Uplift, Texas. Jour. Paleont., vol. 28, pp. 249-285, pls. 24-27.